MAGNETIC RESISTANCE ADJUSTING DEVICE FOR EXERCISER

FIELD OF THE INVENTION

The present invention relates to a magnetic resistance adjusting device that includes a plate having magnets which is pivotable relative to the wheel and a guide member for maintaining a fixed gap between the plate and the wheel.

BACKGROUND OF THE INVENTION

A conventional stationary bicycle generally includes a wheel and a crank is connected to the wheel so that the user may operate the crank to rotate the wheel. In order to have better exercising feature, a resistance device is connected to the wheel so that the user has to operate the crank with more effort so as to be exercised. A conventional magnetic resistance device employs a wheel and a carrying member which has a lot of magnetic pieces connected thereto and is able to be moved into a central recess of the wheel. The distance between the magnetic pieces and the wheel decides the force of the magnetic resistance to the user. Nevertheless, because the magnetic force is so huge that when the carrying member is moved into the central recess of the wheel, the carrying member could be tilted or even deformed. The users have to use a lot of force to operate the movement of the carrying member.

The present invention intends to provide a magnetic resistance adjusting device for a stationary bicycle wherein the gap between the wheel and the magnetic pieces is maintained unchanged, only the number of the magnetic pieces facing the wheel is changed.

SUMMARY OF THE INVENTION

In accordance with one aspect of the present invention, there is provided a magnetic resistance type exerciser that comprises a base with a post connected to a top of the base and a driving wheel with a crank is rotatably connected to a first frame extending from the post. An aluminum wheel is rotatably connected to a second frame on the base and a belt is connected between a center of the aluminum wheel and the driving wheel.

A plate is pivotably connected to the second frame and a plurality of magnetic pieces are attached on a side of the plate. The magnetic pieces are located to face a side of a periphery of the aluminum wheel. A pulling member is connected to the plate so as to pivot the plate relative to the aluminum wheel. A guide member is located on the base and the plate is guided by the guide member when the plate is pivoted.

The present invention will become more obvious from the following description when taken in connection with the accompanying drawings which show, for purposes of illustration only, a preferred embodiment in accordance with the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a side view of the stationary bicycle of the present invention;

Fig. 2 shows the magnetic resistance adjusting device of the present invention;

Fig. 3 shows the gap between the aluminum wheel and the plate is unchanged by the guide member;

Fig. 4 shows that the plate is pivoted away from the aluminum wheel;

Fig. 5 shows all the magnetic pieces are located to face the aluminum wheel;

Fig. 6 shows the rollers of the guide member can be replaced with balls;

Fig. 7 shows another embodiment of the guide member;

Fig. 8 shows two sides of the plate used in Fig. 7;

Fig. 9 shows all the magnetic pieces are located to face the aluminum wheel of the embodiment as shown in Fig. 7;

Fig. 10 shows yet another embodiment of the guide member of the present invention;

Fig. 11 shows the plate used in Fig. 10;

Fig. 12 shows a further embodiment of the magnetic resistance adjusting device of the present invention;

Fig. 13 shows the magnetic resistance adjusting device of the present invention is used on a stationary bicycle;

Fig. 14 shows the plate is hooked to a U-shaped bar on the frame of the bicycle;

Fig. 15 shows the plate used in Fig. 13, and

Fig. 16 shows the magnetic pieced on the plate and facing the aluminum wheel of the embodiment in Fig. 13.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to Figs. 1 and 2, the magnetic resistance type exerciser 10 of the present invention comprises a base 21 and a post 11 is connected to a top of the base 21. A handlebar (not shown) or the like is connected to a top of the post 11. A

magnetic resistance device 20 is connected to the exerciser 10 and includes a driving wheel 13 rotatably connected to a first frame 12 extending from the post 11 and a crank 16 is connected to the driving wheel 13. Pedals 15 are connected to each end of the crank 16 so that the user may operate the pedals 15 to rotate the driving wheel 13. An aluminum wheel 25 is rotatably connected to a second frame 22 on the base 21 and a belt 14 is connected between a center of the aluminum wheel 25 and the driving wheel 13. The aluminum wheel 25 is rotated when the driving wheel 13 is rotated.

A plate 26 is pivotably connected to the second frame 22 and a plurality of magnetic pieces 27 are attached on a side of the plate 26. The magnetic pieces 27 are located to face a side of a periphery of the aluminum wheel 25 such that when the aluminum wheel 25 is rotated, a magnetic resistance is generated. A pulling member 28 has one end hooked on a support frame 261 on the plate 26 and a stop 281 on the pulling member 28 is engaged on another support member 24 on the base 21. A spring 29 is mounted to the pulling member 28 and biased between the end of the pulling member 28 and the stop 281. The plate 26 is pivoted relative to the aluminum wheel 25 when a user pulls the pulling member 28.

A guide member 23 is located on the base 21 and two rollers 231 are connected to the guide member 23. The rollers 231 contact the side of the plate 26 so that the plate 26 is pivoted to roll the rollers 231 so that the gap between the aluminum wheel 25 and the plate 26 and the magnetic pieces 27 is unchanged as shown in Fig. 3.

As shown in Fig. 4, when the plate 26 is pivoted away from the aluminum wheel 25, some of the magnetic pieces 27 are moved away from the aluminum wheel 25 so that the magnetic resistance is reduced. As shown in Fig. 5, when the plate 26 is adjusted to the position as shown, all the magnetic pieces 27 are activated to generate the resistance. The rollers 231 can also be replaced with balls 231' as shown in Fig. 6.

Referring to Figs. 7 to 9, the guide member 23 may have a groove 232 defined therethrough and the plate 26 has a protrusion 262 which is movably engaged with the groove 232. The plate 26 is then moved along the trace of the groove 232 and this also maintain the gap to be not changed.

Referring to Figs. 10 and 11, the guide member 23 can also have a curve edge and the plate 26 has a hook 263 which is movably hooked to the curve edge of the guide member 23. Fig. 12 shows that the groove 221 can be made in the second frame 22 and the protrusion 264 on the plate 26 is movably extended through the groove 221.

Referring to Figs. 13 to 16, the stationary bicycle 30 has a fork 31 between which the aluminum wheel 41 is located. The plate 42 having magnetic pieces 44 has one end 421 pivotably connected to a tube 311 on the fork 31 and the other end of the plate 42 has a hook 422. A support member 423 is located on a mediate portion of the plate 42 so as to perform as the support frame 261 disclosed in Fig. 2. A U-shaped bar 32 is connected to two tubes 311' on the fork 31 so that the hook 422 of the plate 42 is movably hooked on the bar 32.

While we have shown and described the embodiment in accordance with the present invention, it should be clear to those skilled in the art that further embodiments may be made without departing from the scope of the present invention.

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